

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
RIGHTS PROTECTION IMPLEMENTATION – CLIMATE CHANGE
FY 2014 FINAL PROGRESS REPORT (1/15/2016)**

Project Title: Residential Energy Efficiency Pilot Program

Tribe: Lummi Nation

Project Leader/Staff Contact: Jeremy Freimund

Email: jeremyf@lummi-nsn.gov

Phone: (360) 312-2314

Goals and Purpose: Climate mitigation, achieved by reducing carbon emissions, is an important management strategy to address future climate change and was identified as an early action item in both the Lummi Nation Strategic Energy Plan and the Lummi Nation Climate Change Mitigation and Adaptation Plan. This finding echoes those of the Intergovernmental Panel on Climate Change (IPCC), the U.S. Global Change Research Program (USGCRP), the Washington State Blue Ribbon Panel on Ocean Acidification, and others, all of which conclude that reducing emissions of carbon dioxide is the foremost strategy for dealing with climate change. In recognition of this finding, the Lummi Indian Business Council (LIBC) adopted Resolution No. 2014-084 *Guiding Principles to Address Climate Change*, providing a policy directive to the LIBC administration to undertake efforts as soon as practicable to develop strategies for contributing to a reduction of the causes of climate change and global warming (i.e., to reduce carbon emissions).

Future climate conditions will be determined by the quantity of anthropogenic greenhouse gas emissions over the coming decades. The IPCC's Fifth Assessment Report (2013) indicates that global average air temperature will likely increase between 1.0 °C and 3.7 °C by 2100 based on a range of different greenhouse gas emissions scenarios; the choices made today will determine which emissions scenario is realized in the future. The Lummi Nation chooses to serve as a leader in reducing emissions, in part, because climate change will impact virtually all treaty-protected natural resources. Salmon, for example, will be negatively impacted by changes in temperature (e.g., warmer stream temperature), changes in precipitation (e.g., higher winter streamflow, lower summer streamflow), changes in food availability (e.g., resulting from ocean acidification), habitat loss (e.g., loss of estuarine rearing habitat resulting from sea level rise), among others. Given the severity of potential impacts, the Lummi Nation finds that climate mitigation needs to happen sooner, rather than later, and that there is no better place to undertake these actions than in the homes and lives of Lummi community members.

Given the considerations above, the purpose of the Residential Energy Efficiency Pilot Program is to explore a direct approach to reduce energy use in and resultant carbon emissions from the homes of Lummi tribal members and to support the inherent and treaty-protected rights of Lummi residents to a healthy and comfortable home/indoor environment. The goal of the pilot program is to develop and implement a system for performing residential energy audits and energy efficiency retrofitting and/or weatherization in partnership with the Opportunity Council

(local, non-profit organization), while also quantifying the energy and cost savings and emissions reductions accomplished through the pilot program. Results will help guide future efforts to reduce the carbon footprint of the Lummi community, as well as provide critical community outreach and climate awareness education, which are also identified as early action items in the Lummi Nation Strategic Energy Plan and the Lummi Nation Climate Change Mitigation and Adaptation Plan.

Project Description: Through the pilot program, energy audits and energy efficiency retrofitting and/or weatherization was performed on 8 homes located on the Lummi Indian Reservation (Reservation) that are owned by Lummi tribal members. Staff of the Lummi Natural Resources Department's (LNR) Water Resources Division managed program administration.

The pilot program was publically advertised to solicit voluntary participation by interested individuals through a press release and advertisement published in the January 2015 issue of Lummi Nation's monthly newspaper, the *Squol Quol*, and a January 15, 2015 community outreach event hosted by the Lummi Nation Community Services Department. Applications were reviewed by the Opportunity Council in accordance with established eligibility criteria for their Low Income Weatherization Program and eligible applicants were selected for inclusion in the pilot program on a first-come, first-served basis. Each home was then audited by the Opportunity Council's contractors in coordination with the homeowner. The audit provided a pre-improvement "Energy Performance Score," which included estimated annual energy use (kilowatt hours [kWh]) and carbon emissions (tons). With the audit results, the Opportunity Council also provided residents with a prioritized list of site specific improvements that would maximize energy savings and make use of available utility rebates, cash incentives, and other funding sources. Using the pilot program grant funds, the LNR paid the cost of the energy audit and the cost of deferred maintenance, health and safety upgrades, and/or unsubsidized energy efficiency retrofits/upgrades up to a predetermined dollar amount (not to exceed \$15,000 per home). All improvements were made by pre-qualified contractors. Upon completion of improvements, the Opportunity Council provided third party quality assurance on all work completed and conducted a second energy assessment to quantify estimated annual energy savings and emissions reductions (post-improvement "Energy Performance Score").

Progress and Accomplishments: Measureable progress was made over the January 1, 2015 through December 31, 2015 performance period toward achieving the primary goal of the Residential Energy Efficiency Pilot Program to develop and implement a system for performing residential energy audits and energy efficiency retrofitting and/or weatherization in partnership with the Opportunity Council, while also quantifying the energy savings and emissions reductions. As described above, energy audits and energy efficiency retrofitting and/or weatherization was performed on 8 homes located on the Reservation that are owned by Lummi tribal members. A summary of the program outcomes (i.e., energy savings and carbon emissions reductions) are provided in Table 1 and further described in the final report provided by the Opportunity Council (Appendix 1). Overall, this initial pilot project resulted in a 30 percent reduction in total energy use (kWh) and a 24 percent reduction in the total carbon emissions (tons/year) from the 8 homes involved.

Table 1. FY 2014 Residential Energy Efficiency Pilot Program Energy Performance Scores Summary

Address	Energy Score (kilowatt hours)				Carbon Score (tons/year)			
	Before Upgrades	After Upgrades	Savings	Percent Savings	Before Upgrades	After Upgrades	Savings	Percent Savings
3469 Lummi Shore Road	16,000	12,000	4,000	25	5.4	3.9	1.5	28
4241 Lummi Shore Road	25,000	12,000	13,000	52	5.9	4.0	1.9	32
2799 Lummi Shore Road	24,000	20,000	4,000	17	8.0	6.5	1.5	19
3231 Wekes Lane	29,000	14,000	15,000	52	6.9	3.8	3.1	45
2581 Scott Road	21,000	11,000	10,000	48	5.4	3.5	1.9	35
4762 Cobble Way	28,000	20,000	8,000	29	6.7	4.9	1.8	27
3581 Robertson Road	26,000	24,000	2,000	8	6.1	5.7	0.4	7
2876 Haxton Way	25,000	23,000	2,000	8	7.6	7.0	0.6	8
Total	194,000	136,000	58,000	30	52.0	39.3	12.7	24

Challenges: While there were no significant challenges that hindered the completion of established objectives, there were two small challenges that were encountered over the performance period and that have been addressed to improve program implementation. First, as described in the midterm progress report, the Opportunity Council noted that the challenges faced in the early phases of the program were not unlike those that have been observed in other communities. Namely, that it takes time to obtain and verify eligibility paperwork and schedule pre-assessments. This initial time lag did not seriously delay program outcomes and it is anticipated that enrollment in the program will be expedited during the 2016 performance period now that working relationships between the parties involved have been established. Second, pre-assessments of homes prior to full energy audits indicated that the costs of deferred maintenance and/or health and safety upgrades, which were required to be corrected to meet guidelines for the Low Income Weatherization Program, were generally higher than the LNR had initially anticipated. To rectify this problem, the allowable costs were increased from approximately \$3,500-4,000 per home to \$15,000 per home for the LNR grant fund expenditures. Increasing the allowable costs reduced the total number of homes included in the program; a total of 8 homes were included, short of the initial goal of including approximately 15 homes. The Opportunity Council noted that this higher cost of deferred maintenance and needed health and safety upgrades is not unusual for homes that are eligible for the Low Income Weatherization Program and that if the additional LNR funding had not been available to make required upgrades these homes would have been deferred due to a lack of funding.

Outcomes and Expected Benefits: One of the primary outcomes of the pilot project is energy savings and carbon emissions reductions for member owned homes on the Reservation, which has clear benefits for climate mitigation. Other key outcomes include increased community awareness about climate change and local actions that can be taken to minimize the carbon footprint of the Reservation and a healthier and more comfortable home environment. For example, sealing the building envelope to prevent air leakage will reduce infiltration of hot outdoor air during the summer, thus preventing building overheating, drafts, moisture, and indoor air quality issues (e.g., mold and mildew). Poor indoor air quality (IAQ) has been linked with higher incidence and severity of asthma, allergies, and other respiratory diseases and research indicates that low income and tribal communities are often disproportionately affected by poor IAQ. Although a significant benefit to residents, quantifying the improvements in indoor health and safety is beyond the scope of this project. Finally, the pilot project advances the Lummi Nation's stated intent to develop appropriate goals for addressing the effects of climate change and for contributing to the reduction of the causes of climate change.

APPENDIX 1

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January 12, 2016

RE: Lummi Nation Residential Energy Efficiency Pilot Program (FY 2014)

In 2015, the Opportunity Council partnered with the Lummi Natural Resources Department (LNR) to provide energy efficiency upgrades to Lummi tribal member's homes. Eight homes were identified and received services during the performance period (see attachments). Each home received a comprehensive energy audit to identify needed upgrades. Based on the findings of these energy audits, home improvements were made that included energy efficiency upgrades, various repairs, and health and safety upgrades.

Five of the eight homes were in need of moderate to substantial repairs that were required to be addressed before any energy efficiency work could be completed. The LNR funds were used to make these repairs, which in turn allowed the Opportunity Council to complete the energy efficiency and health and safety upgrades. Without the LNR funds, the Opportunity Council would normally have deferred these five projects due to lack of funding for moderate to substantial repairs.

By bringing together the resources of the Opportunity Council and the Lummi Natural Resources Department, we have left eight homes safer, more durable, and more energy efficient. I anticipate that 2016 will bring the same kind of results that we saw in 2015. We look forward to this partnership in the upcoming year and hopefully years to follow.

Thanks,



Kyle White
Program Manager
Home Improvement Dept.
Opportunity Council
360-733-6559 ext. 111
kyle_white@oppco.org

Community Action

A Community Action Agency
serving Whatcom, Island and
San Juan Counties since 1965

Whatcom County
1111 Cornwall Ave., Ste. 200
Bellingham, WA 98225
(360) 734-5121
(800) 649-5121
Fax (360) 671-0541

Island County
1791 NE 1st Ave.
P.O. Box 922
Oak Harbor, WA 98277
(360) 679-6577
Fax (360) 679-2440

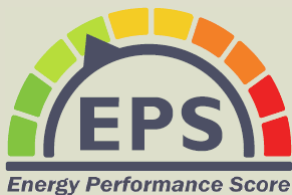
San Juan County
(800) 649-5121

www.oppco.org

The Opportunity Council fully complies with the Americans with Disabilities Act. For information or to request accommodation, please contact our Human Resource department.



ENERGY PERFORMANCE SCORE

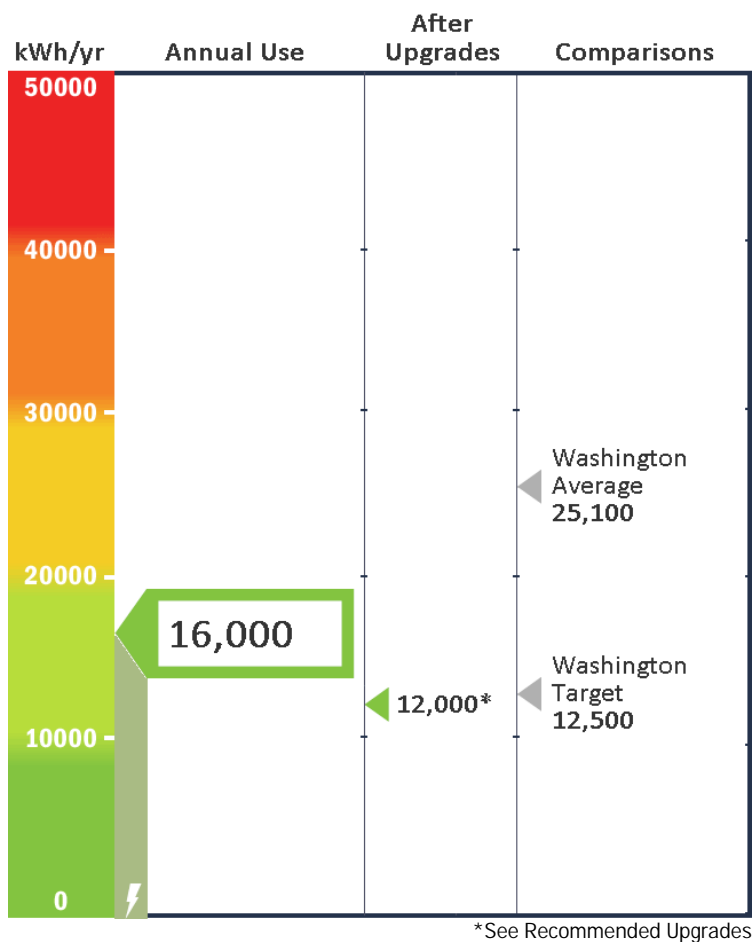


Address: 3469 Lummi Shore Rd
Bellingham, WA 98226

Reference Number: 530020918
Score Status: Official

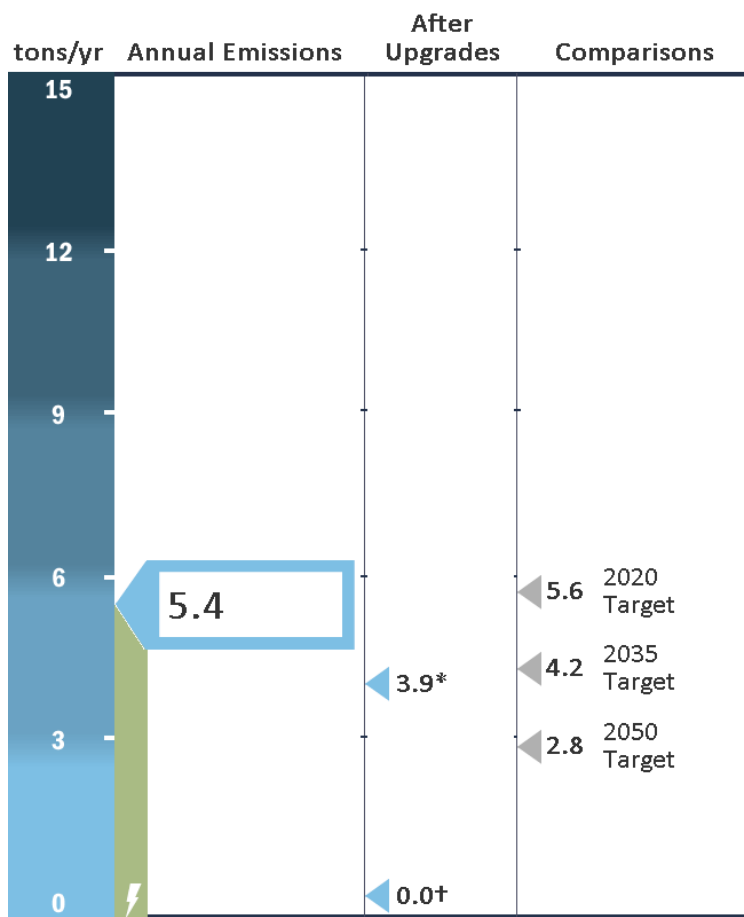
	Current Energy Use	Energy Cost	Carbon
Energy Score:	16,000 kWhe/yr	\$1,621	Carbon Score: 5.4 tons/yr
⚡ Electric:	16,200 kWh/yr	\$1,621	⚡ Electric: 5.4 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades
†With energy from renewable sources

The energy score measures the estimated total energy use (electricity, natural gas, propane, heating oil) of this home for one year. The lower the score, the less energy required for normal use. Actual consumption and costs may vary.

Measured in kilowatt hours per year (kWhe/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

3 Bedroom, 884 sq ft Single Family Detached Home, built in 1990

Audit Date: 05/12/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



Visit www.communityenergychallenge.org to maximize energy savings

Energy Performance Score

► What is the Energy Performance Score?

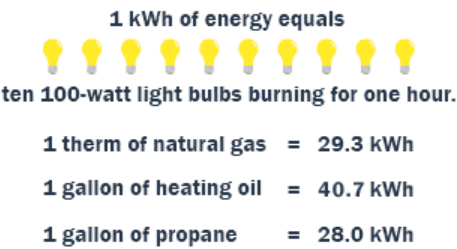
A Certified Score The Energy Performance Score calculation is based on a home energy assessment. Anyone may use the EPS assessment methodology for evaluating energy performance and upgrades of a home, but only a certified EPS analyst has been trained and qualified to conduct an EPS.

► Energy

Energy Score Calculation The energy score is based on a home's shape, size, insulation levels, air leakage, heating and cooling systems, major appliances, lighting, and hot water heating. Occupancy, behavior, indoor temperature, and regional weather are standardized to calculate normal energy use. A home's actual energy use will vary with behavior, weather, and changes to the home.

Measurements Defined

Electricity is measured in kilowatt hours (kWh). Natural gas is measured in therms. Oil and propane are measured in gallons (gal). Units of energy can be converted from one to another. Total energy use is represented in kilowatt hour equivalents.



Energy Costs - Fuel costs are based on prices at the time the EPS is issued* and do not include taxes, surcharges, or fees for renewable energy.

Benchmarks Defined

After Upgrades indicates the improvement in the predicted energy use if the lower and higher cost Recommended Energy Upgrades are implemented.

Washington Average is the average energy use of households in Washington State as of 2006.

Washington Target is equivalent to 50% of the Washington average energy use, and represent the state's energy reduction goals.

► Carbon

Carbon Score Calculation The Carbon Score is based on the greenhouse gas emissions for the annual amounts, types, and sources of fuels used in the home. For electricity, the carbon emissions are based on electricity consumed and the mix of sources used in the sub-region. For natural gas, heating oil, and propane, carbon emissions are based on the therms or gallons used in the home.

Measurements Defined

While site energy is used to determine a home's annual energy consumption, source energy is used to calculate the home's associated carbon emissions. This is reflected in the sub-region emissions factor for electricity.

Benchmarks Defined

†With energy from renewable sources indicates the carbon emissions produced if the homeowner chooses to offset the carbon emissions associated with electrical use. Check with your utilities to learn more about these options.

After Upgrades indicates the improvement in the predicted carbon emissions if the lower and higher cost Recommended Energy Upgrades are implemented.

By 2020, reduce greenhouse gas emissions in the state of Washington to 1990 levels, a reduction of 10 million metric tons below 2004 emissions.

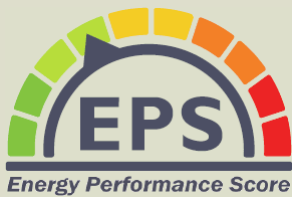
By 2035, reduce greenhouse gas emissions in the state of Washington to 25% below 1990 levels, a reduction of 30 million metric tons below 2004.

By 2050, the state of Washington will do its part to reach global climate stabilization levels by reducing emissions to 50% below 1990 levels or 70% below our expected emissions that year, an absolute reduction in emissions of nearly 50 million metric tons below 2004.

*Estimated energy costs are based on the following rates.

Electric = \$0.10/kWh	Oil = \$4.01/gal
Natural Gas = \$1.30/therm	Propane = \$2.09/gal

ENERGY PERFORMANCE SCORE

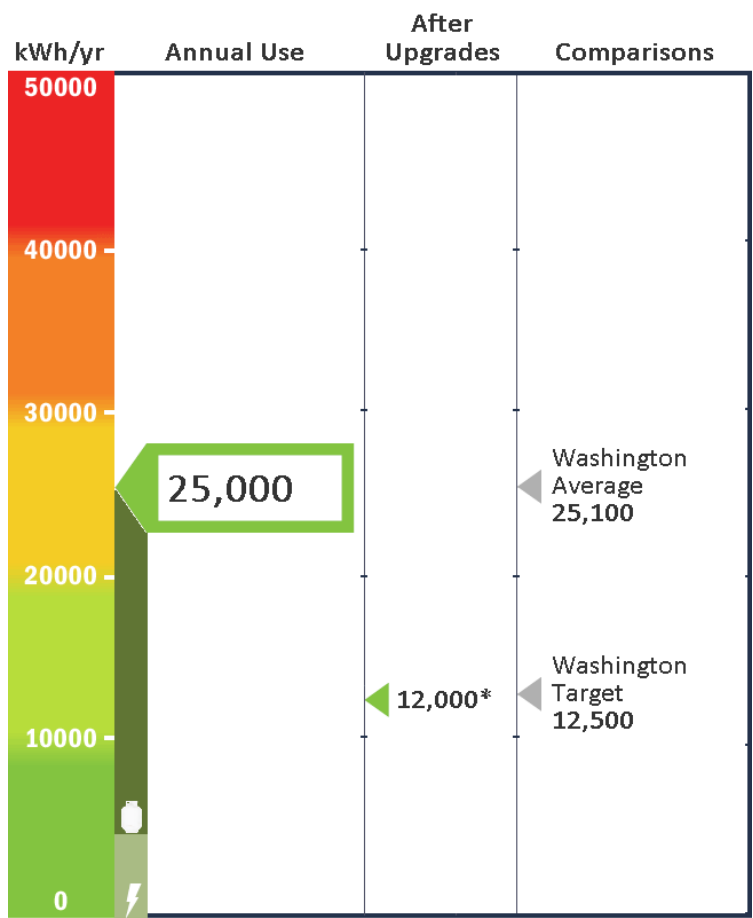


Address: 4241 Lummi Shore Rd
Bellingham, WA 98248

Reference Number: 530020242
Score Status: Official

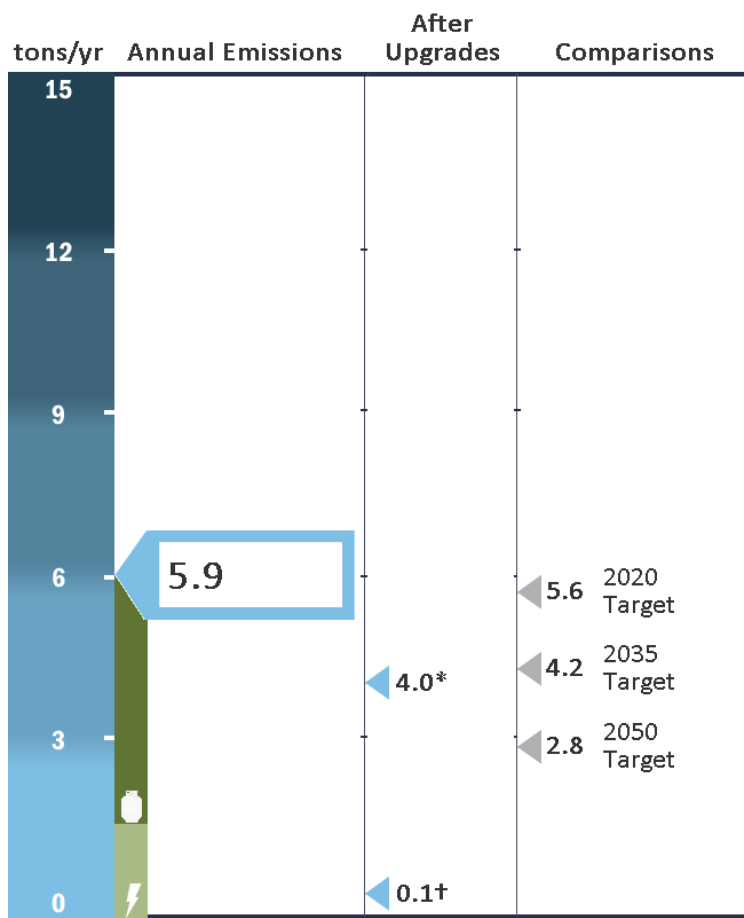
	Current Energy Use	Energy Cost	Carbon
Energy Score:	25,000 kWhe/yr	\$2,047	Carbon Score: 5.9 tons/yr
⚡ Electric:	4,900 kWh/yr	\$493	⚡ Electric: 1.6 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr
🔧 Propane:	740 gal/yr	\$1,554	🔧 Propane: 4.3 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades

†With energy from renewable sources

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Measured in kilowatt hours per year (kWhe/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

3 Bedroom, 1,400 sq ft Single Family Detached Home, built in 1999

Audit Date: 08/17/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



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► What is the Energy Performance Score?

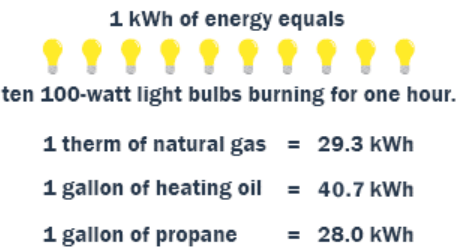
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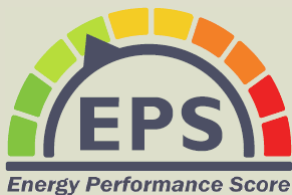
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By 2050, the state of Washington will do its part to reach global climate stabilization levels by reducing emissions to 50% below 1990 levels or 70% below our expected emissions that year, an absolute reduction in emissions of nearly 50 million metric tons below 2004.

*Estimated energy costs are based on the following rates.
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ENERGY PERFORMANCE SCORE

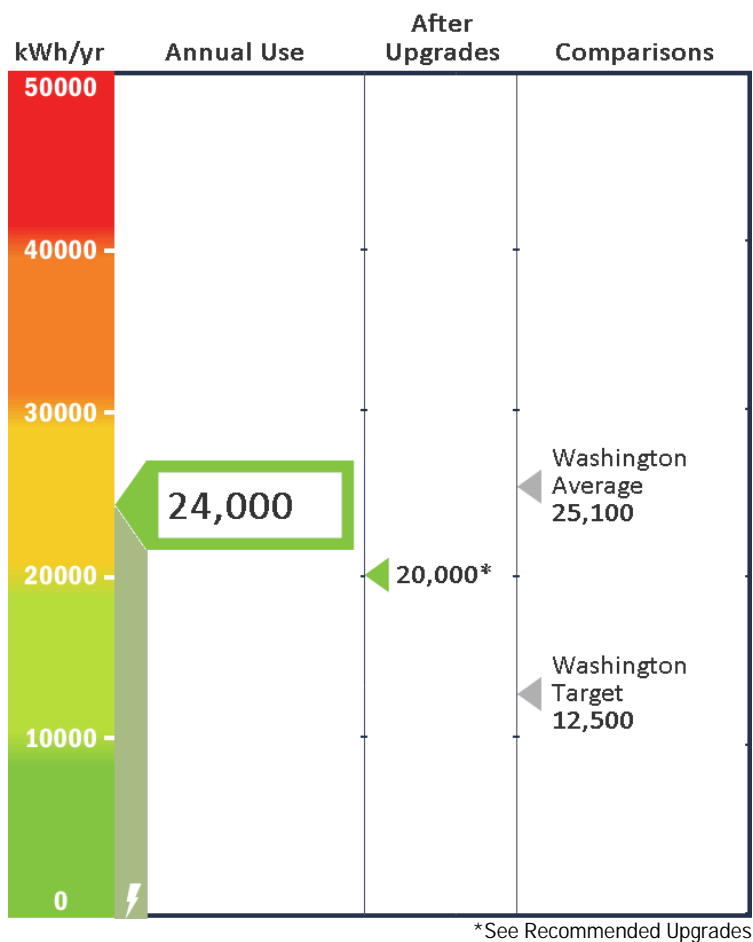


Address: 2799 Lummi Shore Rd
Bellingham, WA 98225

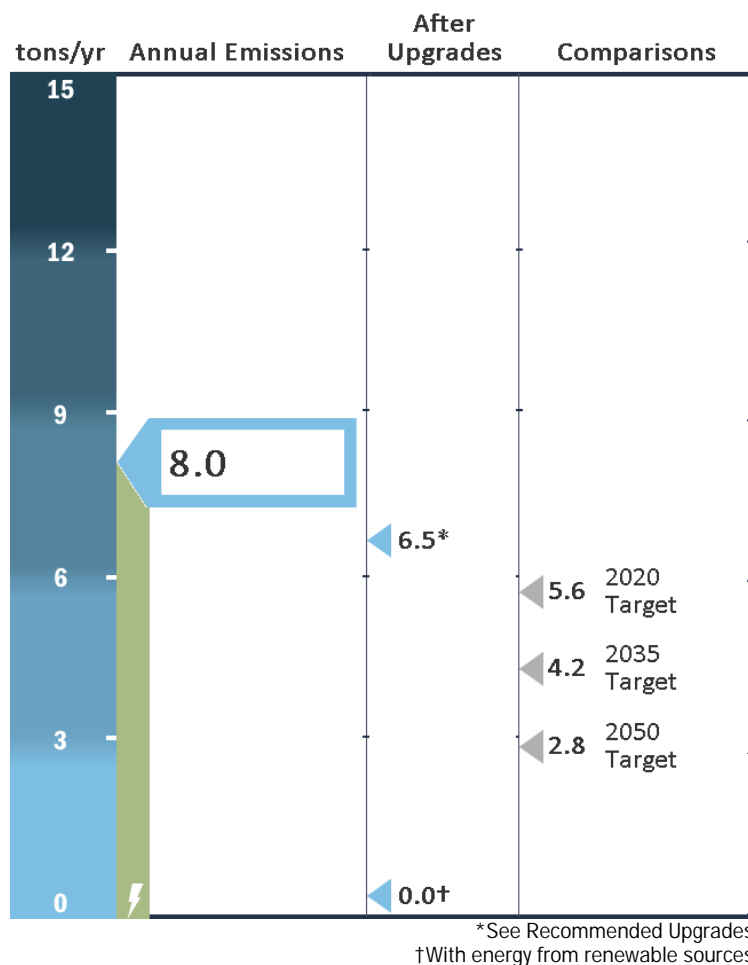
Reference Number: 530020908
Score Status: Official

	Current Energy Use	Energy Cost	Carbon
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🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr

Energy Score



Carbon Score



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Measured in metric tons per year (tons/yr).

3 Bedroom, 1,820 sq ft Single Family Detached Home, built in 2003

Audit Date: 07/27/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



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Energy Performance Score

► What is the Energy Performance Score?

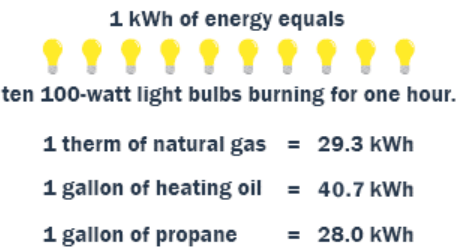
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Benchmarks Defined

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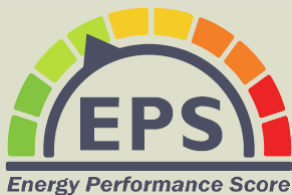
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ENERGY PERFORMANCE SCORE

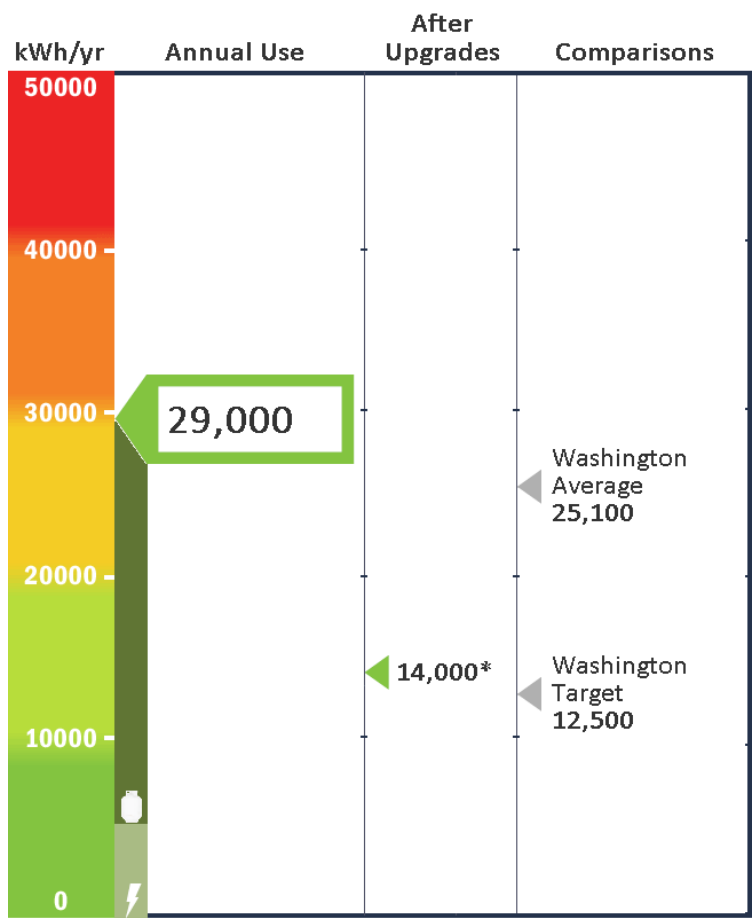


Address: 3231 Wekes Ln
Bellingham, WA 98226

Reference Number: 530020909
Score Status: Official

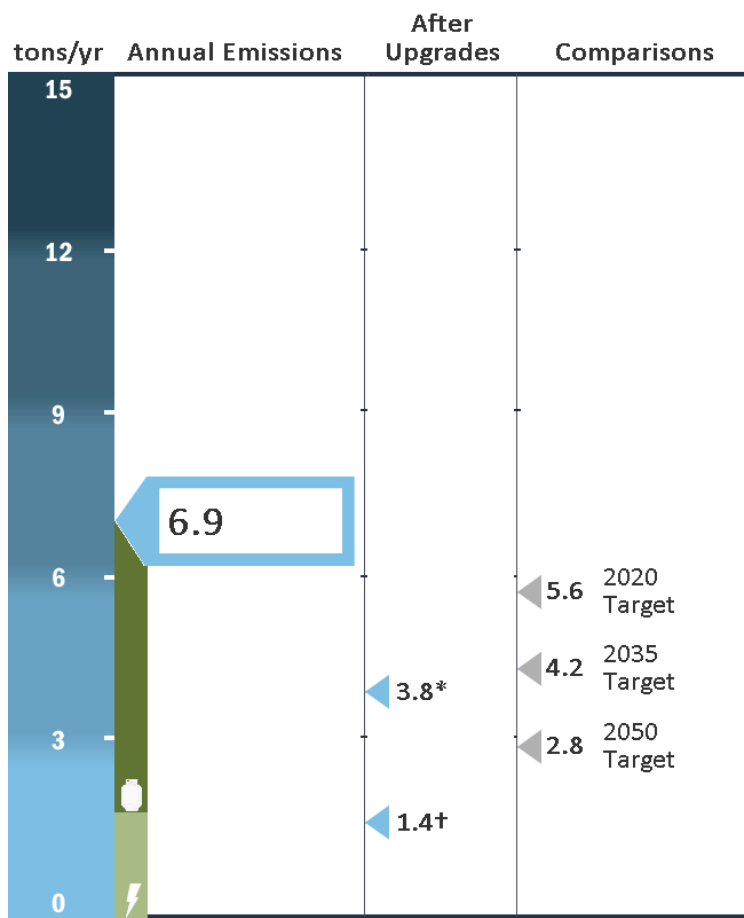
	Current Energy Use	Energy Cost	Carbon
Energy Score:	29,000 kWhe/yr	\$2,387	Carbon Score: 6.9 tons/yr
⚡ Electric:	5,500 kWh/yr	\$555	⚡ Electric: 1.8 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr
🔧 Propane:	880 gal/yr	\$1,832	🔧 Propane: 5.0 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



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Measured in metric tons per year (tons/yr).

4 Bedroom, 1,500 sq ft Single Family Detached Home, built in 1995

Audit Date: 08/19/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



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Energy Performance Score

► What is the Energy Performance Score?

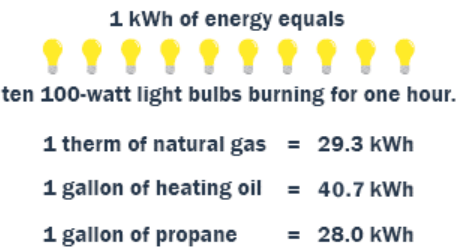
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► Carbon

Carbon Score Calculation The Carbon Score is based on the greenhouse gas emissions for the annual amounts, types, and sources of fuels used in the home. For electricity, the carbon emissions are based on electricity consumed and the mix of sources used in the sub-region. For natural gas, heating oil, and propane, carbon emissions are based on the therms or gallons used in the home.

Measurements Defined

While site energy is used to determine a home's annual energy consumption, source energy is used to calculate the home's associated carbon emissions. This is reflected in the sub-region emissions factor for electricity.

Benchmarks Defined

†With energy from renewable sources indicates the carbon emissions produced if the homeowner chooses to offset the carbon emissions associated with electrical use. Check with your utilities to learn more about these options.

After Upgrades indicates the improvement in the predicted carbon emissions if the lower and higher cost Recommended Energy Upgrades are implemented.

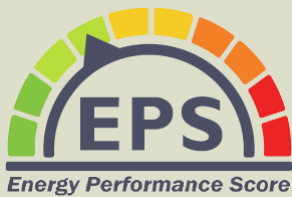
By 2020, reduce greenhouse gas emissions in the state of Washington to 1990 levels, a reduction of 10 million metric tons below 2004 emissions.

By 2035, reduce greenhouse gas emissions in the state of Washington to 25% below 1990 levels, a reduction of 30 million metric tons below 2004.

By 2050, the state of Washington will do its part to reach global climate stabilization levels by reducing emissions to 50% below 1990 levels or 70% below our expected emissions that year, an absolute reduction in emissions of nearly 50 million metric tons below 2004.

*Estimated energy costs are based on the following rates.
Electric = \$0.10/kWh Oil = \$4.01/gal
Natural Gas = \$1.30/therm Propane = \$2.09/gal

ENERGY PERFORMANCE SCORE

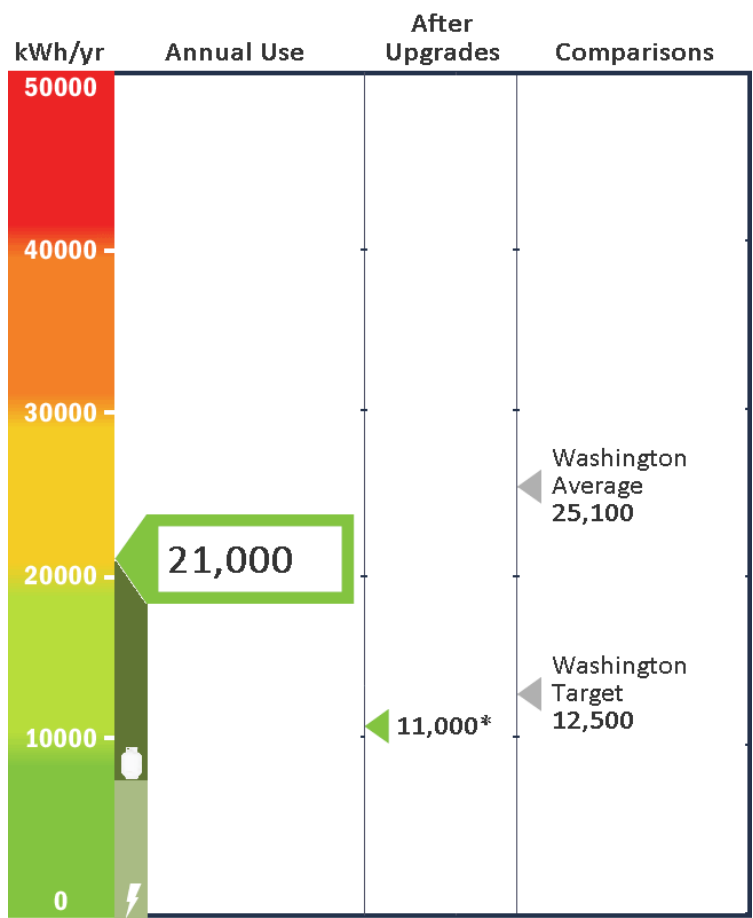


Address: 2581 Scott Rd
Bellingham, WA 98226

Reference Number: 530020913
Score Status: Official

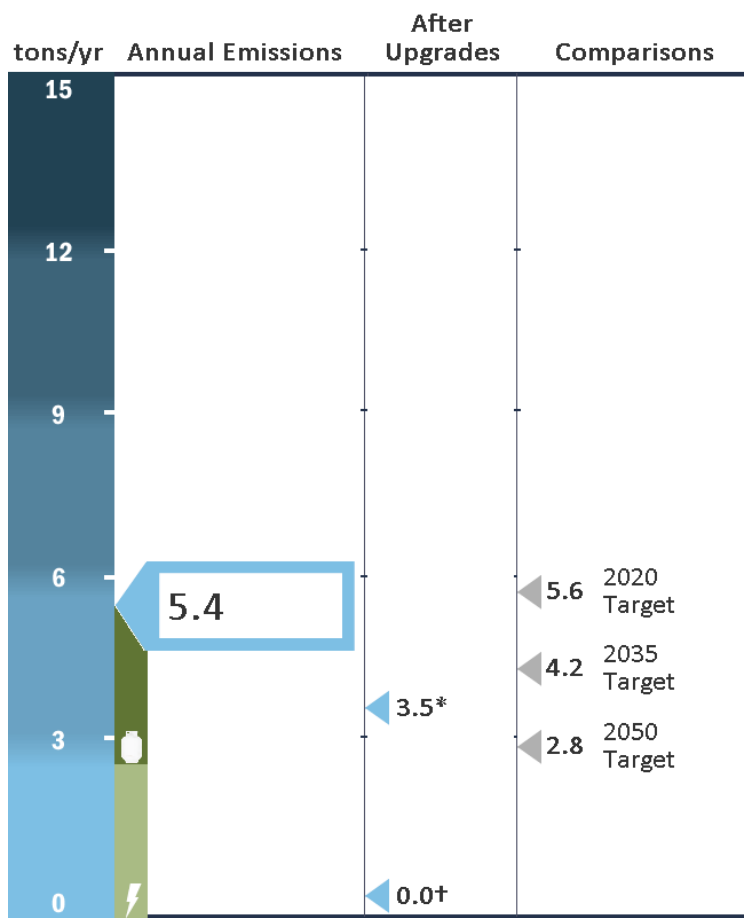
	Current Energy Use	Energy Cost		Carbon
⊙	Energy Score: 21,000 kWhe/yr	\$1,781	⊙	Carbon Score: 5.4 tons/yr
⚡	Electric: 8,000 kWh/yr	\$797	⚡	Electric: 2.6 tons/yr
🔥	Natural Gas: 0 therms/yr	\$0	🔥	Natural Gas: 0.0 tons/yr
🔧	Propane: 470 gal/yr	\$984	🔧	Propane: 2.7 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades
†With energy from renewable sources

The energy score measures the estimated total energy use (electricity, natural gas, propane, heating oil) of this home for one year. The lower the score, the less energy required for normal use. Actual consumption and costs may vary.

Measured in kilowatt hours per year (kWhe/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

3 Bedroom, 1,680 sq ft Single Family Detached Home, built in 1986

Audit Date: 08/04/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



Visit www.communityenergychallenge.org to maximize energy savings

Energy Performance Score

► What is the Energy Performance Score?

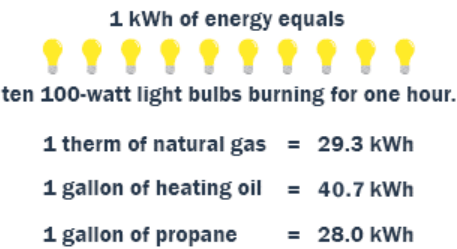
A Certified Score The Energy Performance Score calculation is based on a home energy assessment. Anyone may use the EPS assessment methodology for evaluating energy performance and upgrades of a home, but only a certified EPS analyst has been trained and qualified to conduct an EPS.

► Energy

Energy Score Calculation The energy score is based on a home's shape, size, insulation levels, air leakage, heating and cooling systems, major appliances, lighting, and hot water heating. Occupancy, behavior, indoor temperature, and regional weather are standardized to calculate normal energy use. A home's actual energy use will vary with behavior, weather, and changes to the home.

Measurements Defined

Electricity is measured in kilowatt hours (kWh). Natural gas is measured in therms. Oil and propane are measured in gallons (gal). Units of energy can be converted from one to another. Total energy use is represented in kilowatt hour equivalents.



Energy Costs - Fuel costs are based on prices at the time the EPS is issued* and do not include taxes, surcharges, or fees for renewable energy.

Benchmarks Defined

After Upgrades indicates the improvement in the predicted energy use if the lower and higher cost Recommended Energy Upgrades are implemented.

Washington Average is the average energy use of households in Washington State as of 2006.

Washington Target is equivalent to 50% of the Washington average energy use, and represent the state's energy reduction goals.

► Carbon

Carbon Score Calculation The Carbon Score is based on the greenhouse gas emissions for the annual amounts, types, and sources of fuels used in the home. For electricity, the carbon emissions are based on electricity consumed and the mix of sources used in the sub-region. For natural gas, heating oil, and propane, carbon emissions are based on the therms or gallons used in the home.

Measurements Defined

While site energy is used to determine a home's annual energy consumption, source energy is used to calculate the home's associated carbon emissions. This is reflected in the sub-region emissions factor for electricity.

Benchmarks Defined

†With energy from renewable sources indicates the carbon emissions produced if the homeowner chooses to offset the carbon emissions associated with electrical use. Check with your utilities to learn more about these options.

After Upgrades indicates the improvement in the predicted carbon emissions if the lower and higher cost Recommended Energy Upgrades are implemented.

By 2020, reduce greenhouse gas emissions in the state of Washington to 1990 levels, a reduction of 10 million metric tons below 2004 emissions.

By 2035, reduce greenhouse gas emissions in the state of Washington to 25% below 1990 levels, a reduction of 30 million metric tons below 2004.

By 2050, the state of Washington will do its part to reach global climate stabilization levels by reducing emissions to 50% below 1990 levels or 70% below our expected emissions that year, an absolute reduction in emissions of nearly 50 million metric tons below 2004.

*Estimated energy costs are based on the following rates.

Electric = \$0.10/kWh	Oil = \$4.01/gal
Natural Gas = \$1.30/therm	Propane = \$2.09/gal

ENERGY PERFORMANCE SCORE

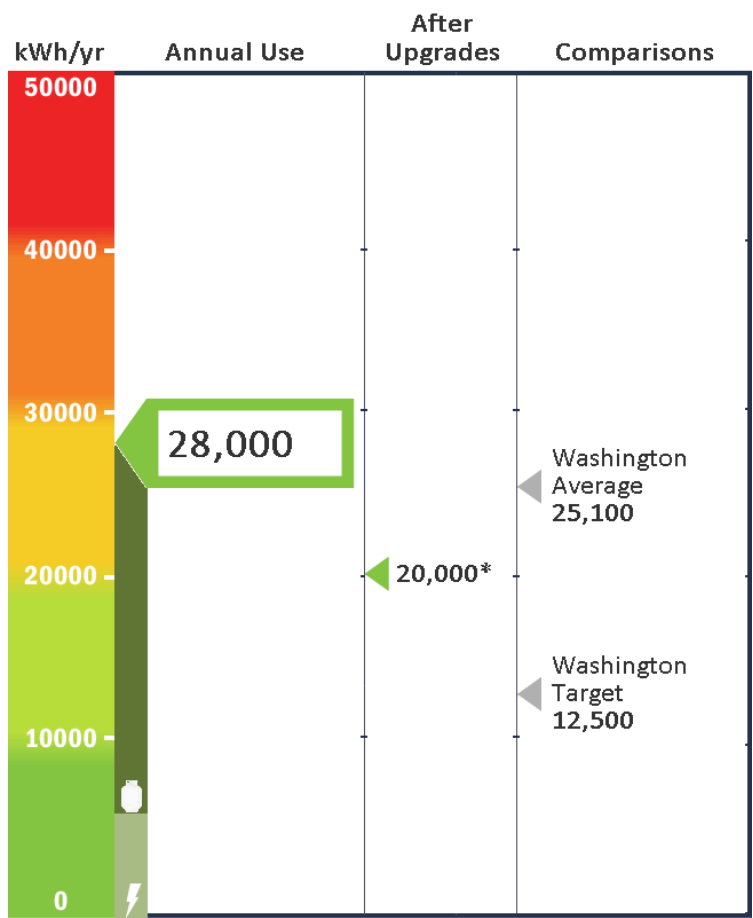


Address: 4762 Cobble Way
Ferndale, WA 98248

Reference Number: 530020916
Score Status: Official

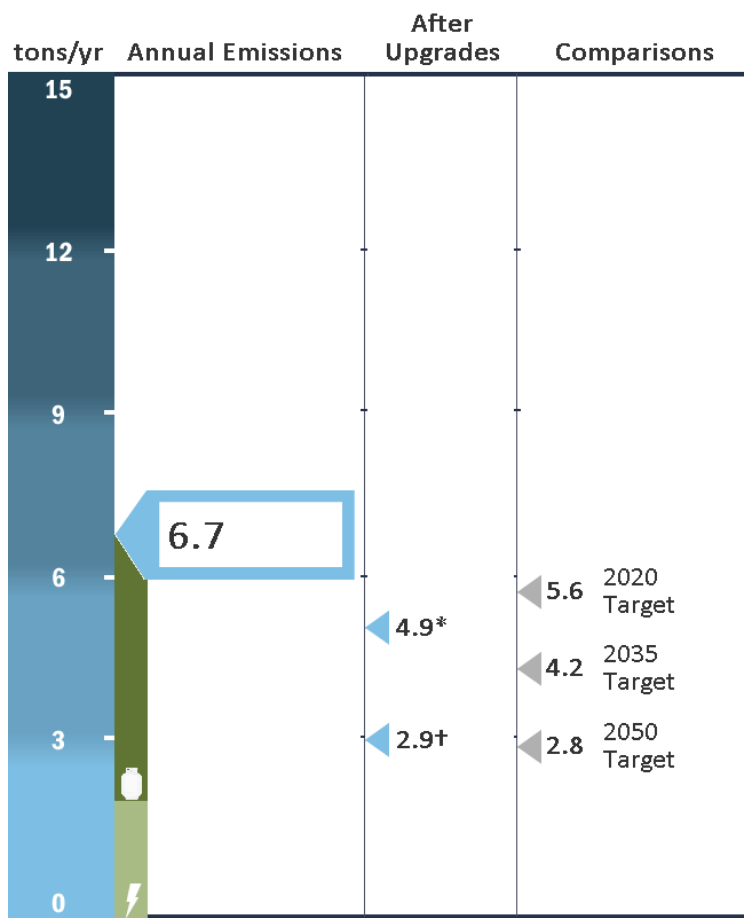
	Current Energy Use	Energy Cost	Carbon
Energy Score:	28,000 kWh/yr	\$2,288	Carbon Score: 6.7 tons/yr
⚡ Electric:	6,200 kWh/yr	\$617	⚡ Electric: 2.0 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr
🔧 Propane:	800 gal/yr	\$1,671	🔧 Propane: 4.6 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades
†With energy from renewable sources

The energy score measures the estimated total energy use (electricity, natural gas, propane, heating oil) of this home for one year. The lower the score, the less energy required for normal use. Actual consumption and costs may vary.

Measured in kilowatt hours per year (kWh/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

4 Bedroom, 1,612 sq ft Single Family Detached Home, built in 1978

Audit Date: 10/27/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



Visit www.communityenergychallenge.org to maximize energy savings

Energy Performance Score

► What is the Energy Performance Score?

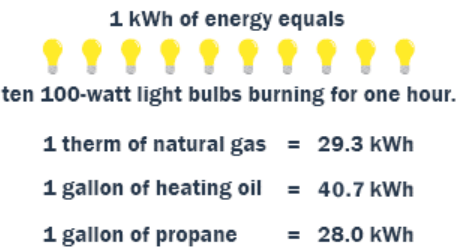
A Certified Score The Energy Performance Score calculation is based on a home energy assessment. Anyone may use the EPS assessment methodology for evaluating energy performance and upgrades of a home, but only a certified EPS analyst has been trained and qualified to conduct an EPS.

► Energy

Energy Score Calculation The energy score is based on a home's shape, size, insulation levels, air leakage, heating and cooling systems, major appliances, lighting, and hot water heating. Occupancy, behavior, indoor temperature, and regional weather are standardized to calculate normal energy use. A home's actual energy use will vary with behavior, weather, and changes to the home.

Measurements Defined

Electricity is measured in kilowatt hours (kWh). Natural gas is measured in therms. Oil and propane are measured in gallons (gal). Units of energy can be converted from one to another. Total energy use is represented in kilowatt hour equivalents.



Energy Costs - Fuel costs are based on prices at the time the EPS is issued* and do not include taxes, surcharges, or fees for renewable energy.

Benchmarks Defined

After Upgrades indicates the improvement in the predicted energy use if the lower and higher cost Recommended Energy Upgrades are implemented.

Washington Average is the average energy use of households in Washington State as of 2006.

Washington Target is equivalent to 50% of the Washington average energy use, and represent the state's energy reduction goals.

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Measurements Defined

While site energy is used to determine a home's annual energy consumption, source energy is used to calculate the home's associated carbon emissions. This is reflected in the sub-region emissions factor for electricity.

Benchmarks Defined

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After Upgrades indicates the improvement in the predicted carbon emissions if the lower and higher cost Recommended Energy Upgrades are implemented.

By 2020, reduce greenhouse gas emissions in the state of Washington to 1990 levels, a reduction of 10 million metric tons below 2004 emissions.

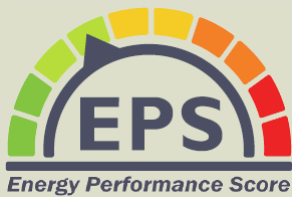
By 2035, reduce greenhouse gas emissions in the state of Washington to 25% below 1990 levels, a reduction of 30 million metric tons below 2004.

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*Estimated energy costs are based on the following rates.

Electric = \$0.10/kWh	Oil = \$4.01/gal
Natural Gas = \$1.30/therm	Propane = \$2.09/gal

ENERGY PERFORMANCE SCORE

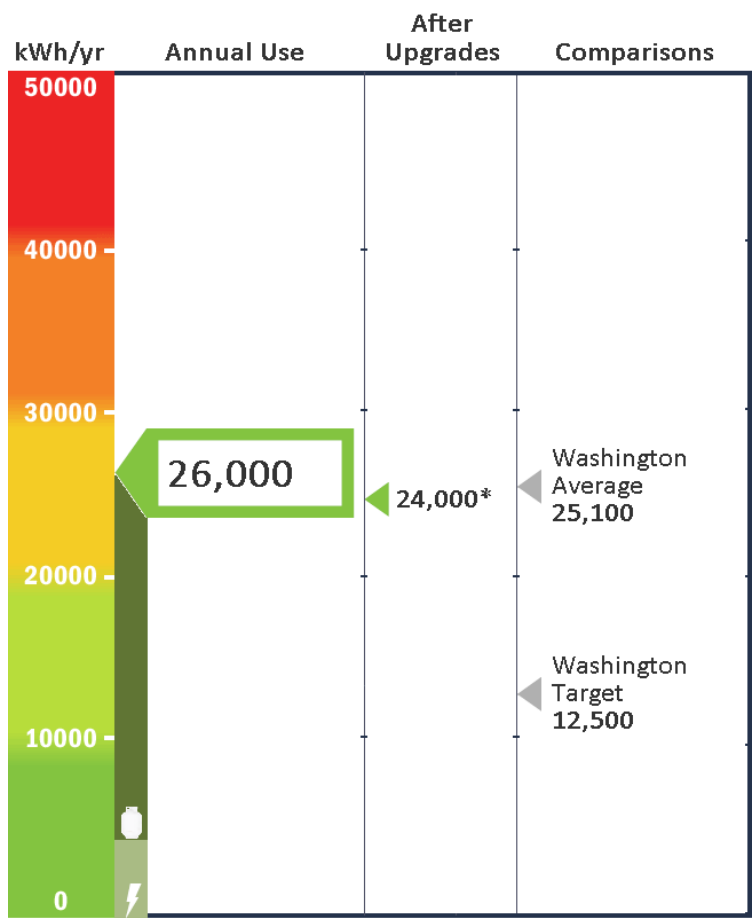


Address: 3581 Robertson Rd
Bellingham, WA 98226

Reference Number: 530020914
Score Status: Official

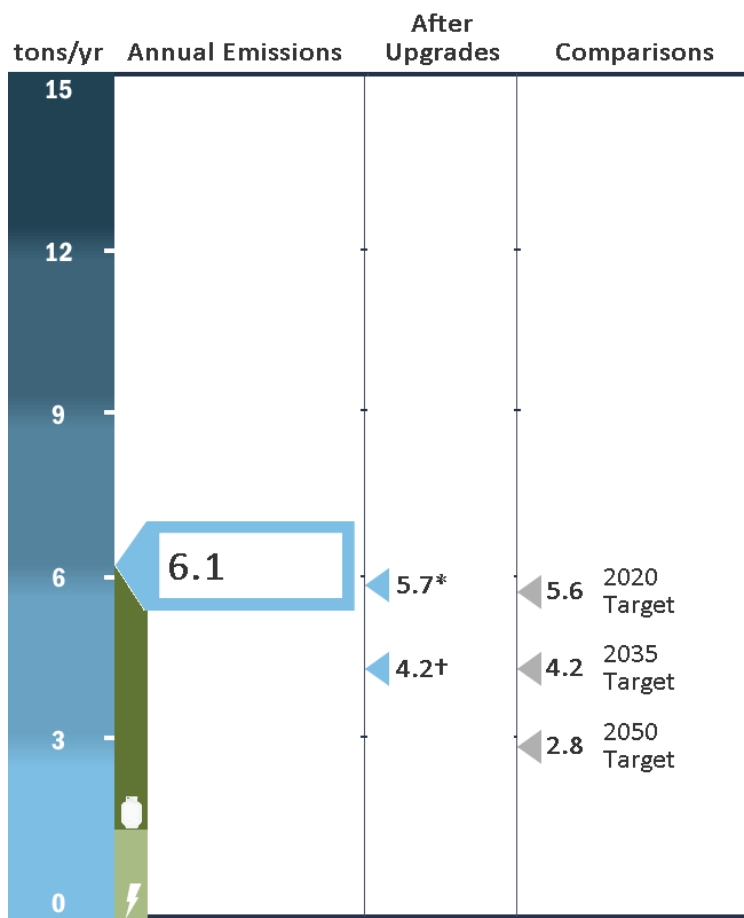
	Current Energy Use	Energy Cost	Carbon
Energy Score:	26,000 kWh/yr	\$2,110	Carbon Score: 6.1 tons/yr
⚡ Electric:	4,600 kWh/yr	\$461	⚡ Electric: 1.5 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas: 0.0 tons/yr
🔧 Propane:	790 gal/yr	\$1,649	🔧 Propane: 4.5 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades
†With energy from renewable sources

The energy score measures the estimated total energy use (electricity, natural gas, propane, heating oil) of this home for one year. The lower the score, the less energy required for normal use. Actual consumption and costs may vary.

Measured in kilowatt hours per year (kWh/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

4 Bedroom, 1,624 sq ft Single Family Detached Home, built in 1995

Audit Date: 09/16/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



Visit www.communityenergychallenge.org to maximize energy savings

Energy Performance Score

► What is the Energy Performance Score?

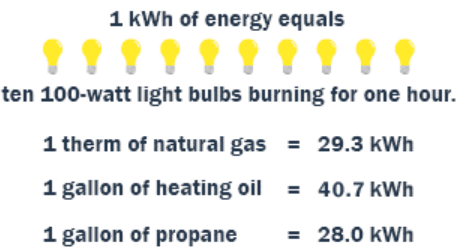
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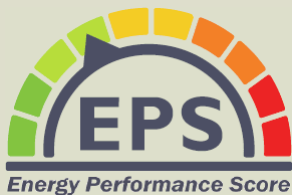
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*Estimated energy costs are based on the following rates.
Electric = \$0.10/kWh Oil = \$4.01/gal
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ENERGY PERFORMANCE SCORE

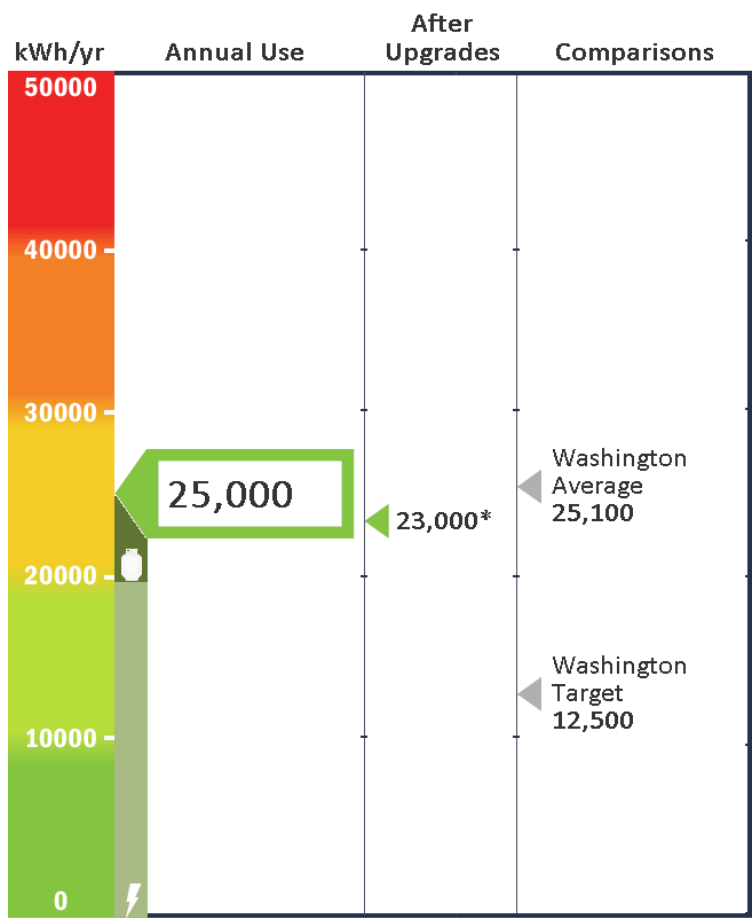


Address: 2876 Haxton Way
Bellingham, WA 98226

Reference Number: 530020917
Score Status: Official

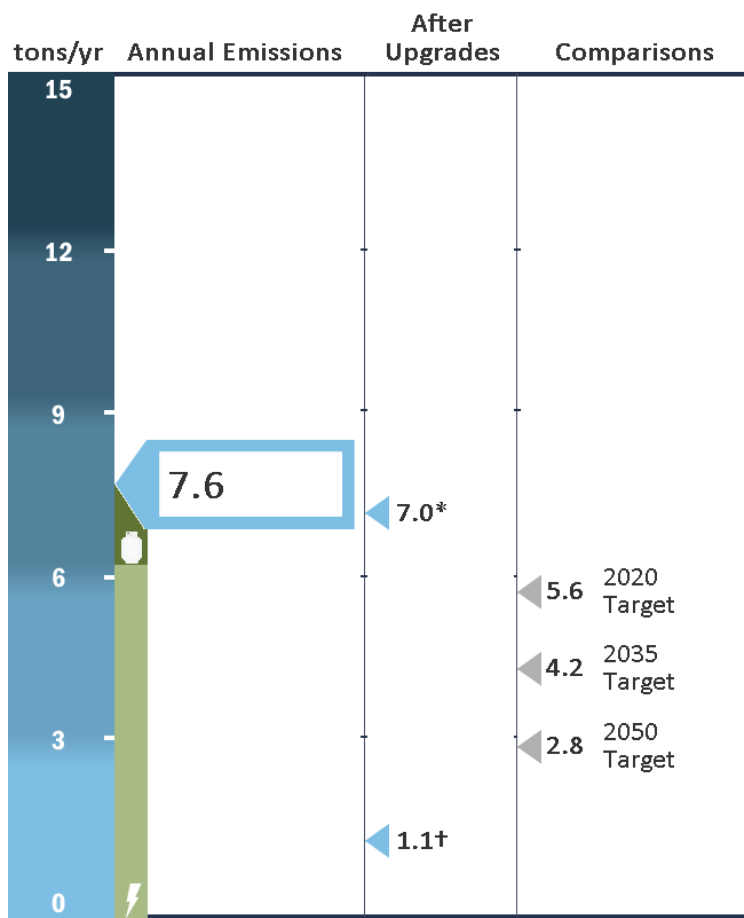
	Current Energy Use	Energy Cost		Carbon
⊙ Energy Score:	25,000 kWhe/yr	\$2,350	⊙ Carbon Score:	7.6 tons/yr
⚡ Electric:	19,500 kWh/yr	\$1,950	⚡ Electric:	6.5 tons/yr
🔥 Natural Gas:	0 therms/yr	\$0	🔥 Natural Gas:	0.0 tons/yr
🔧 Propane:	190 gal/yr	\$399	🔧 Propane:	1.1 tons/yr

Energy Score



*See Recommended Upgrades

Carbon Score



*See Recommended Upgrades

†With energy from renewable sources

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Measured in kilowatt hours per year (kWhe/yr).

The carbon score measures the total carbon emissions based on the annual amounts, types, and sources of fuels used in this home. The lower the score, the less carbon is released into the atmosphere to power this home.

Measured in metric tons per year (tons/yr).

3 Bedroom, 2,160 sq ft Single Family Detached Home, built in 1995

Audit Date: 12/02/2015

Auditor: Community Energy Challenge
Zographos, Scott

SIMPLE Energy Algorithm v0.9.12.6



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Energy Performance Score

► What is the Energy Performance Score?

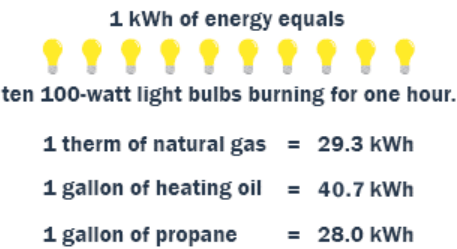
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Energy Costs - Fuel costs are based on prices at the time the EPS is issued* and do not include taxes, surcharges, or fees for renewable energy.

Benchmarks Defined

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Benchmarks Defined

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